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Atomic Research As Related To Dentistry*

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1. *Why should the professional man know about Atomic Research and Radiation Activity and what should he know?*

At the present time, the growing importance of radiation energy is obvious, and it promises to change our way of living and may even alter our entire civilization. Therefore, the professional man must keep abreast of the current knowledge of this subject, especially as it relates to the particular fields of medicine and dentistry. He should know what such energy is, how it is produced, how it is used and controlled, and especially the effects upon the human body and dental structures.

2. *What are the characteristics of Radiation Energy?* Radiation energy is known in three important forms: (a) *Alpha Rays* or particles, consisting of fast-moving helium ions which are not very penetrating but having the ability to ionize substances which they contact; (b) *Beta Rays* or particles, are fast-moving electrons. They travel hundreds of times farther than Alpha particles, therefore have a greater penetrating power, but a less ionizing power; (c) *Gamma Rays*, similar to x-rays, are a form of high frequency (shorter wave length) emanations with great penetrating power.

Other forms of radiation energy are

the electromagnetic types, like radio waves and radar, radiant heat, infra-red rays, visible light, ultra violet rays, x-rays and cosmic rays.

These various types have different effects on body tissues and structures. They can be used for different purposes. They can be controlled by different methods of handling and screening.

3. *Name four close relationships between Atomic Research and Dentistry* (a) *in research*, (b) *in obscure diseases*, (c) *in the treatment of malignant ailments*, (d) *in the recognition and control of toxic radiation effects*. Four close relationships of atomic energy to dentistry are: (a) *In research*. For example, through isotopes or "tracer" elements which can be "tagged," we can study many problems more easily and more accurately than by other methods; these substances are readily measured and easily distinguished in living tissue. Calcium and other mineral metabolisms in teeth and bone can be studied. Thus it has been shown that enamel is not an inert, lifeless tissue but has a definite metabolism. As long ago as 1938 and 1940, Volker showed that radiofluoride, an isotope, was absorbed by the enamel, and suggested that topical application of fluoride solution to enamel would render that tissue less susceptible to decay. Also, Vitamin "D" effects on mineral metab-

*Presented on the Question and Answer Program of the Midwinter Meeting of the Chicago Dental Society, February, 1949.

olism can be followed more clearly by the use of radiotopes. (b) *In Cancer Investigation.* The study of radiation effects shows that cancers and leukemias can be treated by using forms of radiant energy; but excessive exposure to such rays may cause skin cancers, bone damage and blood dyscrasias. Thus bone sarcoma follows radiation osteitis in a high proportion of cases. If we can clarify the intimate relationship of embryonic cell and tissue growth to radiation effects, we will be much closer to discovering the cause and cure of cancer. It is quite possible that the long continued bombardment by cosmic rays, to which our bodies are subjected in the course of many years, may explain why our tissues undergo the sclerotic changes incident to aging; it may explain why we get bald (just as x-rays produce baldness); and it may be that such long exposure to radiation (cosmic) is the reason that cancers are more frequent in older age groups. (c) *In Treatment.* Radiation in proper dosage is a valuable means of treating a variety of ailments. For example, malignancies are often controlled by radiation with almost as good results as surgery and in some cases even better. Many types of blood dyscrasias also are influenced favorably by radiation therapy—for example, in leukemia and polycythemia, radiation is used over the hematopoietic tissues, and also the use of radio isotopes by injection. Benign tumors frequently are best treated by radiation therapy. Various dermatites are often benefited by radiation treatment. Acute infections, such as cellulitis, sinusitis, furuncles, carbuncles; and chronic ones, like bursitis; are helped greatly by such therapy. (d) *In considering the medical and dental aspects of Radiological Safety:* The appalling effects of radiation exposure on the human body were emphasized at the time of the *Atomic Bomb* explosions. In the use of x-rays and in the work of producing atomic energy substances, we see similar damaging effects. Many of these effects relating to radiation sickness and injury and to radio-active poisoning have important dental implications. The up-to-date dental prac-

itioner must keep posted on these effects on the oral tissues and dental structures, and must know how to prevent and treat them.

4. *What are the sources of radio-active energy? (a) natural, (b) man-made.* The sources of radio-active energy are: (a) *Natural:* Radium Ores, Thorium, Uranium, Cosmic Rays. (b) *Man-Made:* X-Rays; Radium, refined; Cyclotron, Uranium Pile, Atomic Bomb.

5. *What application of isotope tracer elements has been used in furthering caries studies; in other research problems; in therapeutics?* Radio-active isotopes were used over ten years ago to demonstrate that dental tissues have a definite, though small mineral metabolism. Enamel was shown to absorb radio-active Fluorine 18. At that time it was pointed out that the topical application of fluorine solution to render enamel less susceptible to caries had a scientific basis. Radio-active isotopes are valuable in tracing the roles of phosphorus, calcium, sodium, sulphur and numerous other elements in relation to dental and bony metabolism.

In therapeutics, radio-active iodine has been used in thyroid disease. Radio-active sodium and phosphorus have been used in the treatment of neoplastic diseases and in blood dyscrasias. While these newer substances are not free of harmful side effects, they do open up a new field of discovery that has hopeful possibilities.

6. *What are the effects of radiation activity on the (a) skin, (b) blood, (c) genetic cells, (d) oral tissues and dental structures?* Radiation effects on the skin, such as were seen after the Atomic Bomb explosions in Japan, consisted of burns with a tendency to form Keloid scars. These burns were of various degrees, depending on the proximity to the source of the explosion, on intervening filtering substances, such as clothing, etc., on the individual. Some burns showed immediate effects due to heat and light rays; others showed delayed damage due to radiation. All manner of bizarre distributions were noted; unilateral, outlines of shadows and clothing (suspenders). Alopecia was a common result—again

in various forms—immediate, delayed, transient, permanent and in a great variety as to areas involved. *Blood-forming tissues* were damaged, causing a diminution of cellular elements—leucopenia, agranulocytopenia, anemia and thrombocytopenia. This caused many fatalities and presented such clinical pictures as agranulocytosis, aplastic anemia and purpura. The *Genetic cells* are particularly susceptible to radiation damage. Sterility and miscarriages, stillbirths and abnormalities may result.

7. *What factors modify these effects?* Many factors influenced the damage from exposure to radiation. The age of the individual was one; in general, younger persons and infants were more susceptible. The type of tissue cells was another factor. Generative cells and embryonic forms were more readily affected. Mature cells and tissues were more resistant. Lymph glands, bone, testes and ovaries are most sensitive. Hair follicles are more sensitive than skin. Blood-forming tissues (bone marrow) are more sensitive than the formed elements in the circulating blood. In decreasing sensitivity are lymphocytic, granulocytes, platelets and erythrocytes. The highly organized nerve tissue of the brain is peculiarly resistant. Some species of animal are more radio-sensitive, others more radio-resistant. Thus the guinea pig and rat are more sensitive, the goat about equally sensitive to man, and fish less sensitive. The proximity to the source of exposure and whether exposure is direct or shielded by filtering substances are, of course, important modifying factors.

8. *What is meant by radiological safety?* Radiological safety is a new special field of medicine which considers all medical phases relating to the production, use, control and effects of radio-active energy. Those engaged in any health service should have some knowledge of theories concerning nuclear physics, the methods of detecting ionizing radiation, the medical and dental aspects of radiation sickness, radiation injury, and radio-active poisoning, and especially the methods of prevention and treatment.

9. *What are the most frequent oral manifestations of radiation injury?* The most frequent oral manifestations of radiation injury and radio-active poisoning are: Stomatitis with ulcerations, noma and necrosis noncomitant with the agranulocytosis; smooth tongue and pallor of the mucous membrane as a result of the anemia (aplastic); bleeding gums, petechia, ecchymosis and hemorrhages due to the thrombocytopenic purpura; dead pulps and abscesses as a result of injury to the pulpal cells and tissue by the action of the rays; embryonal forms of cells, such as odontoblasts, may be damaged, resulting in abnormal dentition; loosening and loss of teeth was often found due to destruction of the alveolar bone and peridental membrane; gold fillings were found to have become radio-active; bone damage, resulting in an osteitis with typical osteosclerosis and osteoporosis, osteomyelitis, necrosis and sequestration, occurred commonly; bone sarcoma followed in a high percentage of the chronic osteitis cases resulting from radio-active poisoning; focal necrosis of the teeth was a most characteristic and specific lesion in such cases of radio-active poisoning, these lesions being readily diagnosed on the x-ray appearance alone and thus being of great importance from a dental point of view.

10. *What are the specific dental lesions which the dentist can easily recognize and which are so characteristic that they may be termed "pathognomonic"?* In that form of radiation disease known as radio-active poisoning, there are specific oral and dental lesions which permit the diagnosis to be made easily. In fact, the first recognition of this form of ailment in the radium dial painters was made by an oral surgeon, Theodore Blum, M.D., D.D.S., of New York, after all previous medical consultation had failed to establish a correct diagnosis. The peculiar findings are: (a) Clinically a chronic, progressive and persistent osteitis with loosening of the teeth, secondary infection, osteomyelitis, sequestration, pathological fractures, septicemia and frequently a fatal termination. Not uncommonly

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EDITORIAL

WILL'-O'-THE WISP

Every once in a while, it seems, somebody bursts into print to describe a new caries preventive agent that promises to eclipse all others. It is to be regretted that the feature writers cannot be held in check until such a time as the agents have been given a chance to prove themselves. Starting with fluorine, both topically applied and added to the drinking water, sensation has followed sensation until the public is utterly confused. As a matter of fact, most of the dental profession is confused, too. Dr. Blayney and his associates, who are conducting the Evanston study, are one group that is showing remarkable restraint. They do not expect to come to any valid conclusions about the effect of adding fluorine to the drinking water for ten years.

In the meantime, the whole basic premise of the cause of caries is being disputed by a group of California nutritionists. This group believes that people who are susceptible to caries are undernourished. True, they may consume plenty, even an overabundance, of the carbohydrates but by the same token they probably do not consume a sufficient amount of other nutrients. These nutritionists profess to believe that this is the reason why the saliva of these individuals contains an insufficient amount of the amines from which the protective ammonium ion could be derived. Dental caries, in their opinion, is a nutritional deficiency disease, pure and simple; well, perhaps not so pure, but at least simple.

It can hardly be denied that results have been achieved with a variety of preventive measures, for these authoritative statements have been made, *to wit*: (1) The topical application of fluorides will reduce the caries rate; (2) Impregnation, properly applied, will reduce the caries rate; (3) Certain ammonium salts, when incorporated in a toothpaste, will reduce the caries rate (by lowering the lactobacillus count); (4) Chlorophyll, when incorporated in a toothpaste, will reduce the caries rate (again, by lowering the lactobacillus count); and (5) Proper diet will reduce the caries rate.

As it looks from here, we are still pursuing a *Will'-o'-the-Wisp* which some day may take concrete form. Until then, the dentist may as well keep plugging the method of his choice. He will be doing his patient a considerable service, anyway.

THE VOTING MUDDLE

Ever since the last election, members of the Society have been making inquiries as to what happened to the questionnaire that was sent out by one of the interested parties, relative to voting by some other method than the present one. In the first place, there were hardly enough replies upon which to base any conclusions whatsoever. And, the replies that did come in were at considerable variance. Quite a number gave as their reason for not voting at all, their abhorrence of "politics." *Politics* in its true meaning is, according to Webster, "the science and art of government; the science dealing with the organization, regulation and administration of a state, in both its internal and external affairs."

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What's New in Dentistry

(Continued from May 1 issue)

Continuing the abstracts of the proceedings of the twenty-sixth general meeting of the International Association of Dental Research, we find many new and interesting phases of dental research.

Ennever, Robinson and Kitchin presented a practical method for the in vivo production of bacterial plaques suitable for microsectioning. Since plaques occur similarly on tooth substance and celloidin, removable dentures were made with a celloidin "tooth". This would be worn in the mouth, removed, and sections made of the plaque material produced on celloidin studied without disturbing its relationship. It is readily apparent that this method gives an easy way of evaluating the effectiveness of anticaries therapy aimed at bacterial plaque destruction.

Gurney showed the direct relationship between salivary secretion and excretion and the dietary factor of calcium, phosphorus and vitamin D intake as well as the systemic factor of gastric stimulation. A mineral "tide" existed after ingestion of mineral-rich foodstuffs which had a bearing on the rate of oral calculus deposition. The effect of gastric stimulation on salivary output was also shown.

Scott and Wyckoff gave the results of their latest studies made on the surface structure of enamel and the internal structure of enamel and dentin by the shadowed collodion replica method using the electron microscope. Micrographs were shown of the granular structure of enamel rods, the apparent sheathlike structure at the periphery, and the interprismatic material. Micrographs of dentin showed the structure of the tubules and matrix as revealed by various etching agents, and the character of dentinal fibers isolated by means of different techniques.

Everett and Maloney indicated that the theory of geometric progression in the toxicity of procaine hydrochloride is

untrue. In experiments aimed at testing the toxicity of 2 and 4 per cent procaine hydrochloride, there was no significant difference in toxicity for solutions of either strength when the absolute drug amount is kept the same. In another article, Everett pointed out that a 4 per cent solution of procaine produces a much deeper anesthetic than the 2 per cent solution, obliterating most or all pain that could be felt under the 2 per cent solution.

Angell showed the superiority of gold alloy wires over stainless steel in orthodontia work. Because of lower modulus of elasticity, gold wires of similar cross section to stainless steel serve as better springs. Soldering to stainless steel wires reduce their ability to serve as springs, making them inferior to gold alloy wires which can be heat-treated after soldering.

Griffiths gave results of the abrasion resistance of acrylic resin teeth. He found that teeth molded in the laboratory from methyl methacrylate showed the most amount of abrasion—commercial brands of injection molded acrylic resin teeth did not wear as much—a commercial brand of vinyl-acrylic teeth exhibited the least amount of abrasion. Under these same tests, porcelain teeth showed no appreciable loss of weight.

Borovansky stated that in 50 cases of pulpless tooth extractions, the arterial and venal blood were examined immediately and at regular intervals after the tooth extraction. In 30 per cent of the cases, there was a bacteriemia as early as 15 minutes after the extraction. In all the cases, streptococci could have been cultivated. In another article by the same author, it was proved that all cases of acute dental focal infection have a positive skin test with the streptococci from the dental foci. From the result of the desensitization and immunization, used

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NEWS AND ANNOUNCEMENTS

NORTHWESTERN UNIVERSITY

June 13 marked the 91st Annual Commencement of Northwestern University. Ninety-three degrees of Doctor of Dental Surgery were granted. The Graduate School bestowed the Master of Science in Dentistry to thirteen. Diplomas for the course in Dental Hygiene were awarded to twenty-three.

On May 25, the annual senior banquet was held for the graduating class at the Furniture Club of America. Omicron Kappa Upsilon shared the program and awarded honor keys to nine members of the class. Doctors Robert E. Blackwell and George B. Denton, who will become emeritus this year, were honored.

The annual Homecoming was held on June 8 at the Dental School. A large and enthusiastic attendance made it a successful event. The classes of 1899 and 1944 held reunions. Twenty-one members of the fifty-year class were present. Doctors Fred W. Gethro and Christopher A. Bostelman were two Chicago dentists in this group.

The Class of 1914 gave to the school an oil painting of Dr. Arthur D. Black which is to be placed in the library of the Dental School.

Dean and Mrs. Charles W. Freeman leave the early part of July for an extended European tour. Dean Freeman will be on the program for the American Dental Society of Europe which meets in Paris. He will also attend the meeting of the Royal College of Surgeons in London, England.

TELEPHONE COURSE AUGMENTS FACULTY

The faculty for the panel on *Dentistry for Children*, the program scheduled for November, 1949, in the postgraduate telephone extension course, has been an-

nounced by the University of Illinois College of Dentistry. It includes the following dental educators and specialists: Dean John C. Brauer, University of Southern California; Dean Roy G. Ellis, University of Toronto; Dean Allan G. Brodie, University of Illinois; Dr. Ruth Martin, Washington University; Dr. George Teuscher, Northwestern University; and Dr. Maury Massler, University of Illinois. The faculty for the other four panels will be announced at a later date.

Chicago Dental Society members interested in participating in the program should contact the secretary of their Branch.

GOLF OUTING HUGE SUCCESS

The annual golf outing of the Chicago Dental Society was held at Nordic Hills Country Club on June 22. The weatherman finally came through (which was his due, considering what he did to us last year) and enticed 139 golfers out into the open, where they battled woods and water for nearly four hours. Jules Barrash, of the Northwest Side Branch, had low gross with a 73 and thus became the unofficial champion of the Chicago Dental Society. Other prizes were distributed in large numbers, but not primarily to the good golfers—just the lucky ones.

The Committee put on one of the finest golf clinics extant. Johnny Revolta, Jimmy Hines and Eric Ball, all outstanding pros, demonstrated the finer points of the game; but even Johnny Revolta had to admit that no one could pitch to the greens at Nordic and make them stick.

After an excellent dinner, served to 159, Herb Graffis, well-known sports writer, entertained with stories which kept his audience in an uproar. Much

credit goes to A. J. Sells and his committee for putting on a wonderful show.

DENTISTRY FEATURED ON TELEVISION

On June 14, Dr. Robert G. Kesel and Dr. Donald Kerr appeared on a program televised by WGN-TV. The program was sponsored by the Educational Committee of the Illinois State Medical Society and the television station as a public service feature and was entitled, "Your Child's Dental Health." It included a general discussion of dental caries and demonstrated visually one correct method of toothbrushing. The mass toothbrushing project now being conducted in Aurora was also discussed and several of the school children participating in this project were used to demonstrate the program.

Dr. Kesel and his colleagues were enthusiastic about the tremendous potentialities of television for visual education. The Chicago Dental Society is grateful to Dr. Charles P. Blair, Chairman of the Educational Committee of the Medical Society, for this opportunity to present an educational program on dentistry.

FOUNDATION ISSUES LICENSES

The University of Illinois Foundation has issued licenses to twelve companies to manufacture and sell ammoniated dentifrices. The licensees include: Amurol Products Co., Bristol-Myers Co., Colgate-Palmolive-Peet; Dybasik Laboratories, Lehn and Fink, Lever Brothers Co., McKesson and Robbins, Sparkle Products Co., Sterling Drug Co., the Walgreen Co., and the Whitehall Pharmaceutical Co.

These companies have, or soon will have, on the market dentifrices bearing the information: "Licensed by the University of Illinois Foundation." This identifies these brands as being those which use the University of Illinois for-

mula, developed by the University's College of Dentistry and Pharmacy.

C.I.F.H.L. ORGANIZES

A committee for Information on Federal Health Legislation of the Chicago Dental Society has been appointed by President Meyer to cooperate with a similar committee of the State Dental Society in a campaign to acquaint the profession and the public with the dangers of compulsory health insurance. The committee, composed of James H. Keith, chairman; M. J. Couch and H. H. Hayes, with the President and Secretary of the Society serving *ex officio*, held a joint meeting with the State Society's committee in the central office in June and formulated a plan of action. Each branch president has been requested to appoint a similar committee in his district.

The first project of the Committee will be to impress upon the members of the Society the importance of distributing the American Dental Association pamphlet, *What Are We Arguing About?* to their friends and patients. Each member has received through the mail five of these pamphlets and a post card from the State Society Secretary with the requisite information for securing more copies at only \$1.50 per hundred.

BOOKLET ANALYZES HEALTH PROBLEM

The Bureau of Health and Hospitals of the National Catholic Welfare Conference, the National Conference of Catholic Charities and the Catholic Hospital Association have recently published a booklet which analyzes the national health problem and the responsibilities of public and private agencies to solve them. The conclusions reached by this study group were that compulsory government insurance programs are liable to destroy Blue Cross and Blue Shield and many other mutual welfare systems, as well as all fraternal and commercial

health insurance systems. The proposed legislation calls for a complicated system of directing, regulating and controlling health services which, in the judgment of hospital authorities and medical men, would be practically unmanageable and which would so increase the demands on existing facilities and personnel that the very weight of the premature demand would necessarily cause a deterioration in the quality of the services rendered.

ARMY OPPOSES PARITY LEGISLATION

The Department of the Army is opposed to legislation calling for administrative reorganization of the Army Dental Corps, on the grounds that it "would tend to fix by statute the duties and powers of a particular corps within the Army." This opposition doesn't come from the "top brass" but directly from the Secretary of the Army, Gordon Gray. In fact, Army Surgeon General Bliss has announced that he has no personal objection to the legislation.

Two identical bills calling for parity of administration of dental and medical officers have been introduced and are now in committee.

VETERANS ADMINISTRATION SPONSORS COURSES IN ORAL MEDICINE

The Department of Medicine and Surgery of the Veterans Administration will initiate in-training courses in oral medicine this summer for its professional personnel. Three authorities in this field will travel separately, visiting selected V-A centers to which dental personnel within the area will be detailed for short courses. They are: Dr. Lester W. Burket, director, postgraduate studies, University of Pennsylvania Dental School; Dr. Edward V. Zegarelli, associate professor of dentistry, Columbia University and Dr.

B. O. A. Thomas, professor and executive officer, Department of Periodontology, School of Dentistry, University of Washington.

Besides the V-A dental personnel who will attend the courses, members of the local medical and dental societies will be invited to attend the evening meetings. One such meeting was held at Hines Hospital on July 5, to which members of the Chicago Dental Society were invited.

This so-called "circuit-riding" educational program is designed to improve the care received by the veteran in V-A installations by keeping V-A professional personnel informed of the new scientific and clinical knowledge.

CHLOROPHYLL NEWEST CARIES PREVENTIVE

At the meeting of the International Association of Dental Research held in Chicago recently, Dr. Gustav W. Rapp announced the results of his research with chlorophyll as a caries preventive. Incorporated in a toothpaste, the substance materially decreases the lactobacillus acidophilus count. Dr. Rapp indicated also that the toothpaste inhibits pathogenic bacteria, such as streptococci and staphylococci aureus, the latter of which is supposed to be a causative factor in tooth decay.

Previous to Dr. Rapp's report, chlorophyll was best known for its mysterious action known to scientists as *photosynthesis*, whereby green plants convert the energy of the sun's rays into stored food energy. Without chlorophyll, neither plants nor animals (including human beings) could live, for the conversion of the energy of the sun's rays into food is the basic principle of life.

Besides reducing the lactobacillus and the pathogenic bacteria count, a chlorophyll-containing toothpaste has marked deodorizing properties. A single brushing with the paste lowers odor considerably below the point felt to be objectionable

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BOOK REVIEW

Dental Caries: by Kenneth A. Easlick, A.M., D.D.S., Ann Arbor, Michigan; 234 pages with illustrations, \$5.00, C. V. Mosby Company, St. Louis.

This book is the report of a conference which was financed largely by funds from the W. K. Kellogg Foundation of Battle Creek, Michigan, and was held during the second week of September, 1947, at the University of Michigan. This conference was planned months in advance and was the result of demands made by various interested groups in the field of caries control. Nineteen persons participated in the lectures and some 114 people entered into the discussions and evaluations. These people were principally dental caries research workers, faculty men and practitioners from all parts of this country and Canada.

The morning lecture sessions were followed by discussion periods. Six evaluating committees were organized and each was to appraise and draw conclusions from material presented at the morning sessions and information gleaned from the library. The six committees were divided as follows: (1) the mechanism of the caries process, (2) the relationship of systemic conditions to the caries process, (3) the effectiveness of prophylaxis, toothbrushing, chewing gum, dentifrices and mouthwashes in the control of caries, (4) the utilization of fluorides and silver salts in the control of caries, (5) the relationship of ingested vitamins and minerals to dental caries, and (6) the contribution of various types of diet to caries control.

The conclusions of these committees were reported and discussed. The sifting out of fact from myth is truly needed in such an important phase of dentistry.

Lectures covering the mechanism of the caries process pointed out that dental caries is characterized by a decalcification of the inorganic portion of the tooth sub-

stance and is accompanied or followed by a disintegration of the organic matrix. The acids involved in decalcification are derived from carbohydrate substances after they have been acted upon by microbial enzymes. A suitable substrate and enzyme system are necessary for the production of acid. The substrate is derived from ingested carbohydrate.

Prophylaxis, toothbrushing, chewing gum, dentifrices and mouthwashes are summed up as follows: "Maintenance of oral hygiene by means of dental prophylaxis and toothbrushing with acceptable aids can be recommended for numerous reasons, although the evidence that such measures are effective in prevention of dental caries is limited and, at present, inadequate."

The discussion on fluorides and silver salts in caries control is enlightening. The mechanism whereby fluorides exert an inhibiting effect is not clearly understood. The efficacy of adding fluorides to communal waters which are fluoride-free is now being tested in several communities. Fluorides applied topically provide a protective treatment for three or more years. An acceptable technic for application should include cleaning and drying the teeth and applying a 2 per cent solution of sodium fluoride (C.P.) which is allowed to dry for three minutes. Silver salts alter both the organic and inorganic constituents of dental enamel, but there is not sufficient evidence that these alterations have any value in the control of dental caries.

Committee 5 submitted the following general conclusion: "The ingestion of vitamins and minerals, in amounts in excess of those required for a normal diet, has not been demonstrated to have any relation to dental caries."

It is well to quote in full the conclusion of Committee 6 on carbohydrate restric-

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QUOTATIONS AND ABSTRACTS

DENTURE RELINING HELD PRACTICE OF DENTISTRY

Advertisers offering to repair dental plates through the use of various substances alleged to tighten loose dentures have recently been under the scrutiny of the Chicago Better Business Bureau.

Under the state Dental Practice Act, the constitutionality of which has been upheld by courts of last resort, including the Supreme Court of Illinois, the repair of dentures is the practice of dentistry and must be conducted under the supervision of a registered and licensed dental practitioner. Advertising of such services direct to the public constitutes an offer to practice dentistry, also in violation of the state Dental Practice Act.

In the case of *State v. Fishwick*, recently decided, the Ohio Court of Appeals upheld a decision of a lower court that roughening the gum surface of dentures, applying plastic relining material and instructing the patient how to replace denture is the practice of dentistry within the meaning of the Ohio Dental Practice Act.

Frank Fishwick, who had been convicted of practicing dentistry without a license, admitted he had advertised a relining and tightening service for false teeth, that he had performed the operation known as relining, but contended that what was done was not an offense as not being a "repair" within the meaning of the statute. He also claimed the prosecution failed to prove he was not included within the exceptions of the statute. The appellate court found no error in failure of the prosecution to offer proof he did not come within the exceptions in the statute, and that defendant's constitutional rights were protected in that he was adequately informed of the charge against him.

The applicable section of the Illinois

statutes is substantially the same as that on which the Ohio conviction was based and affirmed.—*Reprinted from The Report of the Chicago Better Business Bureau, May 23, 1949.*

CARIES REDUCTION HYPOTHESIS

Wartime Reduction of Dental Caries in Europe.—According to Sognnaes, an attempt has been made to assemble and analyze (1) the over-all incidence of dental caries in children from different European countries in the period from the beginning of World War I and the termination of World War II and (2) certain dietary factors in operation during the war years of possible significance in connection with the observed fluctuations in the frequency of caries. It was found that the teeth of European children in all of the occupied and war-torn countries show (1) a definite tendency to decrease in caries in the latter part of, and following, the recent wars. This is (2) most significant in young children and (3) in those teeth of older ones which have developed or matured during war years. The most important general principle evolved from this analysis is (4) that there seems to be several years' delay in the initial effect of wartime conditions on the teeth and, following the first World War, even a greater delay in the return to the prewar dental status. In summing up the dietary analysis, the author has failed (1) to establish a uniform increase in any specific food or food factor which can satisfactorily explain the reduction in caries and (2) to demonstrate the expected concurrent reduction in caries and sugar during the two wars. He has succeeded in showing that in several countries there has been

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NEWS OF THE BRANCHES

NORTH SUBURBAN

The annual golf outing of the Evanston Dental Association was held June 15 at the Glencoe Golf Course. The heavy rain on the eve of the outing kept many of the "Old Faithfuls" busy at home pumping water out of their basements. Nevertheless, for those who attended, it was a wonderful day. Prizes were won by everyone except Bill McGuire. *Why?* Art Freeman had low gross and C. F. Stine won the prize for high gross. Al Parcell, who was in charge of arrangements, endeared himself to all diners by providing an out-of-this-world steak dinner with pic-à-la-mode. Nice work, Al, on a rare and well-done dinner. . . . Paul Bostian of Arlington Heights and Charlie Shaner of Mt. Prospect returned last week from a fishing trip in Minnesota and if their stories are *really true*, they caught plenty of fish. . . . Paul Bass, "Iggy" Ibbotson and Corvin Stine also went fishing, but they either went at the wrong time or to the wrong place, because all they talk about are the wonderful steak dinners they were served. . . . Bob Foster of Glencoe rushed down to Danville, Illinois, the other weekend to discover just how much damage had been caused by the big fire. . . . May we explain how the North Suburban Branch has made it possible for all its interested members to take the University of Illinois Telephone Lecture Course. The North Suburban Branch was unable to sponsor this course because at the time it was offered all branch meetings had been discontinued for the summer, making it impossible for this question to be placed before the membership to learn their wishes. Nevertheless, the officers and the Board of the North Suburban Branch realized that there were members interested and arrangements have been made by the Evanston Association of

Dentists to sponsor this course. A letter has been received by Harry Chronquist, President of the North Suburban Branch, from Corvin Stine, President of the Evanston Association of Dentists, inviting all interested North Suburban members to take this course with the Evanston group. — *Milton Dawson, Assistant Branch Correspondent.*

NORTH SIDE

Hi! You intellectual members who read this column. You are about to scan the best efforts of your new correspondent, (bet you didn't know you had one), and since I'm a dentist like yourselves and not gifted with the *quill and scroll*, it will greatly aid your column for you to advise me of any news you have. Longbeach 1-0207, any time. Thanks! . . . ATTENTION, ATTENTION, there is a change for the better. The North Side golf outing will be held at Chevy Chase Golf Club, one mile north of Wheeling on Milwaukee Ave. This is the old Bon-Air Country Club and I understand it is in very good shape. The date is the same, July 20, and your chairman, Lyle Aseltine. Make your reservations early so that they can get you a prize, for 'most everyone gets one, you know. . . . Now that the business is over, let's see what some of our members have been doing. . . . Manley Elliott, an old hand at this reporting business, returned from Atlantic City, where he represented the North Shore Chapter of the Kiwanis Club at their International Convention. Nice going, Manley. . . . Gene and Mrs. Callahan had a second honeymoon in their new Mercury. Dawn (Mrs. Callahan) enjoyed the ride, and the peace and quiet of being away from the children for awhile. . . . Two weeks ago, George Olsson celebrated his 25th Wedding Anni-

versary and took his bride to Duluth. I don't know if that was a repeat honeymoon, but it's a nice cool place to go anyway. Congratulations, George and Nan! . . . The old "Crown and Bridger" from N. U., Chet Stanley, spent the 4th at his summer home on Lake Katharine. . . . Warren Schram has been bothering the fish around Frazee, Minnesota, the past few weeks but has now returned. . . . Ray Dix also felt the call of the North and recently sojourned in northern Wisconsin and Minnesota. His son kept the offices under control. . . . So much for those who have been places; we hope they have very happy memories. . . . But let's leave history and move into the future for no one knows better than a dentist how times flies. . . . Johnny Boodin, the *Middlecoff* of the Uptown Bank Building, is switching his golf "putter" for that of a fishing boat on Island Lake, Minnesota; while Roland Weber, also of Uptown, is spending the summer at his retreat in the pines near Rhinelander, Wisconsin. I'll bet he will miss the "Pitch" players of the "Phyden" Club, to say nothing of their monetary contributions. . . . While mentioning those moving around the country, I may as well state that your humble servant, this edition, has moved to Northbrook and would be very glad to see any of you at Fourth and Chestnut. . . . I'm one jump ahead of Bernie Rabin who would like to find a suitable house or apartment building to buy; so if you have any hot leads, let him know. . . . Here is an item of interest to any dentist, but since it pertains to the father of one of our prominent members, Bill Williams (the wire bender), it is of greater note. Bill's father recently visited him from Chickaska, Oklahoma, where he still practices dentistry although eighty years old. He is very active and has been at his chosen field for over 55 years. At the end of his 50th year, he was given a gold key by the State Society. A nice idea, don't you think? In addition to this achievement, he has raised and educated five sons, three of whom are dentists. Two went to Northwestern University, and now his grandson, Robert Williams, is there. In

my mind, knowing the calibre of these men, Dr. Williams has made a very interesting and valuable contribution to dentistry. Our hats are off to you, sir! . . . Mentioning a visitor reminds me that the Earl Hullisons are soon to be visited by the stork. "I hope it's twins," he said; so here are our double wishes. . . . Don't know if I beat the stork or the stork beat me on the above item, but Homer Hunley can tell you who came in 2nd in the "Fine Harness" races at Decatur, June 11. None other than his colt in the two-year class. He also rang up 3rd with his yearling colt. Well, one must never underestimate the ability of a dentist—right?—right! Let's have three cheers. . . . Did I mention ability? Well, in the same breath let's mention Russ Boothe, who now has a nice new key, for on May 25 he was elected to the honorary dental society, Omicron Kappa Epsilon. . . . Another of our members also distinguished himself by breaking into the news. The *Tribune* pictured a rumpus room of cypress, built by Fred Scambler. How do you get those worms to eat the wood in the right places? . . . The Chicago Dental Society golf outing was quite a success for about 140 were there. The golf clinic was especially good and that I know can be attested by George Olsson, Ed Luebke, Harry Kent, Andy Sauer, Jr., George Ludes, Carl Jackson and Jim Ford. . . . Flash! Just received word from Paul Edmand that Harry Denen is now number "two" Commander in the Dental Corps, and will be in command of the dental activities on the *Shenandoah*, a destroyer tender. He is now on a Mediterranean cruise; sounds nice.—Robert C. Pond, Branch Correspondent.

NORTHWEST SIDE

Our newly elected officers, directors and committee heads were treated to an informal wining and dining at the home of Pete Wlodkowski, 1623 Kenilworth Ave., in Berwyn. Between servings of excellent food dished out by Mrs. Wlodkowski, the group mixed business with pleasure by making committee appoint-

ments, determining policies and planning activities for the new year. Pete and Mrs. Wlodkowski wanted to show off their home and they should be rightly proud of it. The dining was done in a romantically lighted recreation room, but the built-in bar was easily found! So, as you can see—while you sleep peacefully, your official family is hard at work. . . . Buttons on our vests are popping, all because of the key awarded to our president, Pete Wlodkowski, by the University of Illinois Chapter of Omicron Kappa Upsilon, in recognition of his outstanding professional and alumni activities. Omicron Kappa Upsilon is a national honorary dental fraternity. . . . The Northwest Branch was well represented at the Chicago Dental Society golf outing at Nordic Hills Country Club. Prizes were won by J. D. Mershimer and Ches Stypinski. Also enjoying the fun were Gus Tilley, Bob Placek, Joe Zielinski, Joe Lebow, Toby Weinshenker, Gerson M. Gould and V. A. McCallum. The speaker of the evening was Herb Graffis, of the Staff of the *Sun-Times*. The outstanding golfers, Ernie Ball, Johnny Revolta and Jimmy Hines, conducted a golf clinic and as a result, all who attended can cut ten strokes off their score. A big share of the credit for this record-breaking attendance goes to the chairman, Al Sells. . . . Wroblewski has a new home in Lincolnwood and he and Mrs. Wroblewski are so—happy. . . . J. J. Applebaum has been seen sporting a new Olds, the big job. Hope it runs well. . . . Bob Placek flew to Philadelphia to address the 8th District Dental Society group. . . . LaMar Harris flew to New York to attend the wedding of his daughter, Joyce. Joyce was mentioned in Walter Winchell's column as an outstanding member of the theater. . . . The May issue of the *Dental Digest* presented an article by A. H. Tamarin on *Simplified Construction of an Anatomical Cast Gold Crown*. . . . LeRoy Kurth has been elected a Fellow of the Academy of Denture Prosthetics at their annual meeting in Indianapolis. LaMar Harris and LeRoy Kurth attended this meeting. . . . A. B. Nordlie advises he will be back with us in the fall. . . . Louis Feldstein has closed

his shop for a while in order to take a full-time orthodontic course at Columbia University Dental School. . . . Congratulations to the David M. Sachtlebens on the initiation of their daughter, Barbara, into a national honor society; ditto to Martin Juel on the *Ph.D.* awarded to his son, Leslie, by Northwestern University. Leslie will head the Department of Chemistry at Carthage College. Juel's youngest son, Robert, has enrolled as a freshman at Northwestern University Dental School. . . . Congratulations to Ben Davidson on his daughter's graduation from the University of Illinois. . . . Mark Spencer vacationed in Iowa. Have a nice time, Mark? . . . The Harry Harnicks celebrated their 30th Anniversary and also celebrated the graduations of son, Jay, from the University of Illinois School of Speech and son, Sheldon, from the Northwestern University School of Music. Sheldon also produced the show hit, "Wa Mu," at Northwestern University. . . . Iver Overson's daughter, Phyllis, was married to Edward Ericson, Jr., at the United Lutheran Church in Oak Park. . . . Joe Zielinski's daughter, Anne Jo, graduated from Northwestern University with a *B.S.* degree. . . . Tom Wright's son, Thomas, graduated from grammar school. . . . Gerson M. Gould's daughter was confirmed on June 5. . . . Drop me a card (2804 Elston Ave.) while on vacation.—*Joe Lebow, Branch Correspondent.*

WEST SIDE

The hot and humid summer weather has descended upon us and many of our members are trying to escape by going to various vacation spots. . . . Fred Bazola took off for the Canadian wilds where he expects to catch some large fish. We will await those fishing stories, Fred. . . . Josh Vission left for Bena, Minnesota, for a fishing trip, he says. Some of us believe he left to get out of the golf match with the Herzon brothers and Jack Ehrlich. Seeing the scores that the Herzons and Ehrlich make, I can't blame Vission. . . . Harold Gillogly left for Spooner, Wisconsin, where he hopes to do a lot of fishing.

Don't forget to contact Harold when he gets back and reserve that dinner ticket. . . . Sam Sherman is making week-end treks to South Haven, Michigan. . . Irv Altheim is becoming a navigation expert. He is taking week-end yacht cruises throughout Lake Michigan. Just call him *Commodore*. . . . Carl Madda is going to spend the month of August at his summer home in Long Beach, Indiana. . . . Sam Kleiman is in California taking the state dental examination. Good luck to you, Sam! Also, best of luck to Bob Tuck who is in Virginia taking their state board examination. . . . Congratulations to Carl Weiss and his family. His wife just gave birth to a baby boy. . . . Harry Rubens has been appointed civilian dentist to the U. S. Far East Air Command. He is now in Okinawa and he writes that he has been half-way around the world and that he enjoys his assignment very much. He is doing a good deal of sketching and painting during his free time. . . . John Reilly is at the Hines Hospital, room 319B, where he is to undergo an operation for stomach ulcers. . . . Joe Josh is at Fox Lake where he is recuperating from a recent operation. Hurry back, Joe! . . . Joe Josh has been elected president of the Arcolian Arts Society. They are holding their annual picnic on July 17. . . . The date and time of the University of Illinois telephone extension course has been set. It is to be given on the second Monday of each month beginning with October at 7:30 p.m. Contact Adolph Stark for application. . . . See you later.—*Irwin B. Robinson, Branch Correspondent.*

KENWOOD-HYDE PARK

Kenwood-Hyde Park has been hit hard by "Old Man Illness." Earl Boyer, after several weeks at Illinois Central Hospital for observation, was transferred to St. Luke's, where he underwent surgery. At last report, he was somewhat improved. . . . Otto Mast is also at St. Luke's where he had an emergency appendectomy for a ruptured appendix. Otto was down at

his summer place at Angola, Indiana, when he was stricken. He is making good progress and we hope will soon be 100 per cent. . . . "Gramps" Libberton has gone into Roseland Hospital for surgery, but as yet hasn't had his session with the surgeon. . . . All in all, Kenwood boys have been having a rough time. We hope for all a very speedy recovery. . . . Our president, Larry Johnson, will soon be heading for the Canadian Rockies with Jack Moran. They expect to visit Banff, Lake Louise, Seattle and other parts of the Northwest. Have a nice trip, Larry and Jack. . . . Our golf meet wasn't too well attended, but it may have been the hot weather. Those hardy souls who came had a grand time and a swell dinner. Louis Christopher did his usual swell job. Most everyone got a prize, even your editor. . . . Harry Hartley and his family left for Signourney, Iowa, where every 4th of July the Hartley clan assembles for a reunion and a big catfish fry. Hope it won't be as hot as it was on the golf course, Harry. . . . Our hard-working dinner chairman, Stan Wrobel, was on the job with his season tickets, with which he did right well. If you haven't already reserved your dinner ticket, call Stan. . . . Any news, telephone me at SOuth Chicago 8-1823.—*Elmer Ebert, Branch Correspondent.*

ENGLEWOOD

The summer is again upon us and we are having some grand warm weather for golfing and vacations. . . . Our Englewood golfing tournament went off with a bang. We had eighty-three golfers out and each was awarded a prize. The first prize, a beautiful steak knife set, was won by Henry Urban with a gross score of 77. T. P. Cavagnough won second with a gross score of 80. Twenty-five other prizes were awarded on the basis of the Peoria Handicap system. One golf ball was awarded to each of the other golfers. A delicious roast beef dinner was enjoyed by 100 members and guests. An accordionist was on hand to lend

music and accompaniment to community singing before dinner. Englewood wishes to thank Dan F. Duffy for the fine job he and his committee have accomplished in arranging the big event. John Lace took several photographs of the boys teeing off at the 1st and 19th holes. (Did you get a shot at the cute starting "chick" with the pretty fingernail polish, John?) . . . Most of the fellows I know are either on their vacations or planning them soon. . . . Yours truly will be leaving soon to spend a few weeks at his cottage on Lake Michigan. . . . Harold Hayes is driving to California for a month. . . . T. H. Vermeulen has placed his amphibious airplane on sale and hopes to purchase a model that lands much lighter and slower. . . . M. B. Hopkins has now built a special \$1000.00 room for his \$500.00 television set. . . . The vital statistics committee should take note that our handsome Joe Solus is getting married August 6 to his childhood sweetheart. Congratulations, Joe! . . . We are very sorry to hear that our "funny boy," Jerry Wilher, is in Michael Reese Hospital with a serious heart condition. The attack occurred in Florida, where it was diagnosed as acute asthma. . . . M. C. Baron is also the victim of a coronary condition. Our sincere wishes for a speedy and complete recovery. . . . Our next correspondent, who is most anxious to get your news items, will be John L. Manning, 753 East 79th Street, STewart 3-2980.—*John S. Boersma, assistant branch correspondent.*

WEST SUBURBAN

Our sports chairman, Ed Sullivan, deserves a big pat on the back. The golf outing at Westward Ho was a huge success. It was attended by some of our Chicago Dental Society officers: Edwin Baumann, Secretary; Edgar Stephens,

Program Director; and L. Russell Hegland, Executive Secretary. About fifty-five stayed for a delicious steak dinner with all the trimmings. Heavy rains caused many to stay late over the poker tables, but frantic calls from home because of flooded basements finally broke it up. Mastrud's exuberance over his low gross was exceeded only by that over his luck at poker. Ed Moore, who recently moved to Berwyn from Elmhurst, had better be careful of disastrous results caused by his gadget. Van Den Brink will have to take a ribbing for his moment of lost dignity. . . . Arno Brett is still laid up with a bum ankle. I'm glad to report Harry Nortell is home again and is up and around after his second operation. I'm sure both would like to see some of the fellows. . . . Fred Mahlke is again attempting to get the California board to understand that Illinois Dentists are as good as "Native Sons." . . . Vacation News: Lyle Filek has decided to go to Texas with his family. . . . Ed Kritzke will take time off from remodeling his house to take the last two weeks of July to fish for Northerns and Walleyes up around Manistique. . . . A. Jirsa is going to Canada for two weeks of fishing. . . . L. Braun has been having a hectic time. First, his oldest boy was rushed to the hospital with an appendix attack, but is now well on his way to recovery. Les has his youngest at Delavan Scout Camp. After all this, a month's trailer trip to Glacier National Park. Needless to say, there'll be some fishing. . . . Komarek is going West in his new Pontiac. . . . Ted Mosectick has again turned in a very successful Cicero Lions Club golf tournament. . . . The study of medicine seems to be "Catchy" at J. Kohout's home. His daughter, Marilyn, received a B.S. in liberal arts and her registered nurse's degree. . . . As for me, a few weeks' rest out at the "Ott House" will feel good.—*John H. Ott, Assistant Branch Correspondent.*

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Ethics Committee

Neil A. Kingston 1950
J. R. Carlton 1951
Irvin G. Oaf 1952

Applications for Membership

The following applications have been received by the Ethics Committee: Any member having information relative to any of the applicants, which would affect their membership, should communicate in writing with Neil A. Kingston, 182 E. 154th St., Harvey. Anonymous communications or telephone calls will receive no consideration.

Applicants:

BARCLAY, PAUL S. (U. of Ill. 1944) North Side, 4833 W. Peterson Ave. Endorsed by Leo J. Cahill and Robert H. Sullivan.

EDITORIAL

(Continued from page 8)

Just how we can get away from "politics" and still have any sort of an organization is the \$64.00 question. If anyone has the answer, he hasn't seen fit to advance it.

As a side light to our Dental Society election and the regretfully small number of participants, we note that the Chicago Medical Society, with membership almost twice that of the dental society, in its recent election totaled 1,091 votes for its top man, the president-elect. Its election procedures are set up in such a way that members can vote in their branches, by depositing their ballots with the branch secretary or by mailing them in to the same official. Surely nothing could be simpler than that and yet, only about one-third took the trouble to vote. Someone may have the answer for that one, too!

GROUP INSURANCE

Another enrollment period has been announced by the firm that handles the Society's insurance plan. It cannot be too firmly stressed that this is the last chance for members who have reached age 50 to enroll. Surely enough opportunity has been given to such individuals and if they do not take advantage of it, it's not because they haven't been importuned again and again.

The Chicago Dental Society's insurance plan is group insurance at its best. No claim has as yet been disputed and all of them have been settled to the beneficiary's entire satisfaction. Don't let procrastination rob you of this protection.

PROGRAM SELECTION

Elsewhere in this issue, there appears an announcement by the Monthly Meeting Program Committee. The Committee, through its chairman, Dr. Bignell, requests that the members of the Society take time out to state the subjects of their choice for the scientific programs. It is important that these replies be mailed in immediately so that the Committee may make its contacts with essayists and clinicians. Many of the more popular men are booked several months in advance.

This endeavor on the part of the Program Committee is frankly an experiment. If the response is good, there is no reason why it can't become a routine procedure. If the response is poor, the members have only themselves to blame if the programs don't suit them.

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AGENTS FOR THE DISABILITY AND HOSPITAL PLANS OF THE CHICAGO DENTAL SOCIETY

BOOK REVIEW

(Continued from page 13)

tion. "Studies by a number of investigators indicate that the restriction of sugar, either refined or natural, is effective in the control of dental caries. Moreover, the restriction of sugar, either refined or natural, will improve the dietary, provided the caloric intake remains adequate. The harmful effects of sugar, refined or natural, are not reduced by the addition of either vitamins or minerals."

The responsibility of evaluating and correlating all of the findings of the great number of research workers was a herculean task which was well done and is deserving of praise. The general practitioner cannot help but be better qualified and prepared to cope with the problem of caries control after perusing this book.—Zenas M. Shafer.

Oral Anatomy: by Harry Sicher, M.D., Professor of Anatomy and Histology, Loyola University School of Dentistry, Chicago College of Dental Surgery; 448 pages, profusely illustrated; price \$15.00; C. V. Mosby Co., St. Louis, Mo., 1949.

There are two parts to this book, one dealing with descriptive anatomy and one with regional and applied anatomy. In Part One, Dr. Sicher covers the whole vast field of oral anatomy, beginning with the bones of the skull and continuing on through the musculature of the

head and neck, the temporomandibular articulation, the blood vessels, the lymphatic system, and finally the nerve distribution. In Part Two, he presents the clinical application of this material.

As the author states in his preface, *Oral Anatomy* is not intended to replace but to supplement textbooks on anatomy. He feels that most textbooks are written primarily for medical students and that, generally speaking, they treat the subject too broadly and not deeply enough. Dr. Sicher gets right down to cases in his book and the reader gets the impression that here is authentic information—and right he is.

It is in the field of applied anatomy that Dr. Sicher really stands out. The chapter on *Anatomy of Local Anesthesia*, with the selection of landmarks, the precautions to be taken in order to avoid accidents, and the reasons for failure to get anesthesia, is one of the most valuable in the book. *The Propagation of Dental Infections* is another chapter that cannot be gone over lightly. Each quadrant of the mouth receives individual attention and the role that the muscles, the connective tissue and the fasciae play in the spread of infection is emphasized repeatedly. The temporomandibular articulation and its pathologic changes are treated thoroughly and many misconceptions corrected.

Oral Anatomy is a book that your reviewer unhesitatingly recommends to student and practicing dentist alike. It should be kept near at hand for ready reference.—James H. Keith.

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WHAT'S NEW IN DENTISTRY

(Continued from page 9)

therapeutically, it became evident that allergy plays a part in focal infection and that the streptococci are responsible for dental focal infection in most cases.

Vitamin A deficiency in relation to periodontal tissues was discussed by Glickman and Stoller. Microscopic examination revealed that in the absence of local irritation, the interdental gingival papillae of the vitamin A deficient animals were unaltered and appeared similar to those of the control group. The presence of food debris showed many changes in the deficient animals; a higher incidence of marginal gingivitis; a tendency toward epithelial proliferation along the cementum and into the corium of the interdental papillae; a tendency toward gingival and lateral abscess formation, and marked epithelial hyperkerotosis. The periodontal membrane and interdental alveolar bone presented no significant alterations in vitamin A deficiency.

Granados, Glanind and Dam conducted experiments that show that similar diets with the same initial pH and the same growth-promoting action can have different cariogenic power when such rations differ in certain chemical components and physical properties.

Howell, Schlack, Taylor and Berzinskas, in experiments on the role of oxalates on the extent and incidence of dental caries in the cotton rat, could show no effect of oxalates on either the incidence or extent of carious lesions.

Hugill carried out experiments to artificially produce a caries lesion in vitro to meet its microscopical characteristics. Four phases or combinations of phases were used: (a) acid phase, (b) enzyme phase, (c) acid-enzyme phase, (d) bacterial phase. Results indicate that any acid or any enzyme working independently of one another cannot produce a true caries picture, but a combination of an acid and enzyme reaction on human teeth succeeds to a very high degree. Non-oral organisms, incubated in sugar

broth, reacted on extracted human teeth and produced a microscopical picture not unlike that produced by the acid-enzyme combination. The main objective undertaken in this problem is to produce a control solution which is sterile and capable of artificially producing certain phases of the caries lesion.

Kostlan presented histological findings of four cases of internal granuloma in which the dentin has been partly replaced by osseous tissue.

Studies by Shourie of 1,067 school children from Lahore, India, on the relationship between malocclusion and dental caries, suggest a direct relationship between malocclusion and increased dental caries. On the other hand, studies made by the same author could show no correlation or antagonism between the incidence of dental caries and periodontal disease. Another article by Shourie pointed out that betel nut chewing by certain populations in India appeared to reduce dental decay. The percentage of children free from caries in betel nut chewing areas was 59.7 as compared to 39.1. This reduction could possibly be due in some respect to the leveling off of some of the fissures and pits in teeth by the abrading action of hard betel nut pieces during chewing.

Here's to the dentist, with head so high,
With manners proper and posed,
Who will not even let out a sigh,
When he thinks, "Good Grief, it's exposed!"

—E. J. Sullivan, Evanston.



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**ATOMIC RESEARCH AS RELATED
TO DENTISTRY**

(Continued from page 7)

monly the chronic osteitis is followed by the development of sarcoma. (b) Roentgenologically, in the bone the appearance is characteristic. There is a peculiar mottled appearance due to osteo-sclerosis and osteoporosis. Thus there are small areas of increased calcification interspersed with small areas of absorption. In the teeth, there occur small carious-like decalcified spots which are very distinct and definitely outlined. These decalcified spots occur on the roots of the teeth, well below and around the gingival line, under intact enamel. Thus they can be readily distinguished from caries. These decalcified spots are termed points of "focal necrosis" and are practically specific and pathognomonic of the condition. Thus, an informed dentist can make the diagnosis on the x-ray picture alone.

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NEWS AND ANNOUNCEMENTS
(Continued from page 12)

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DEPARTMENT REPORTS
LOWEST DEATH RATE**

Final Health Department statistics for 1948 show the lowest death rate in Chicago's history, 10.3 per 1,000 population. A century ago, in 1849, during a cholera epidemic, Chicago's death rate was 73.8 per 1,000 population, more than seven times the 1948 figure.

In 1948, for the first time in the city's history, maternal deaths were held to less than 1 per 1,000 live births and the infant death rate was held to 28.5 per 1,000 live births, compared to about 124 per 1,000 a generation ago.

Deaths from communicable diseases also were held to a new low. There were no deaths from scarlet fever, only one death from diphtheria and four from whooping cough. The remarkable record of one death from diphtheria for a whole

year was largely due to the unrelenting efforts of the Health Department and the medical profession to have all babies inoculated with diphtheria toxoid by the time they were a year old. Back in 1880, diphtheria caused 290.7 deaths per 1,000 population. The same precautions were taken with whooping cough, inoculations being given whenever possible.

QUOTATIONS AND ABSTRACTS

(Continued from page 14)

a reduction in refined carbohydrates and of caries after certain time intervals. The author sets forth the hypothesis that in wartime children and their individual teeth during their development and maturation indirectly have benefited by the replacement of the refined caloric food sources by natural ones, and thereby have received certain caries-preventing qualities. That concept is compatible with the time relationship between the reduction in caries and war rationing, and in agreement with observations on experimental animals.—*Abstract from American Journal of Diseases of Children, June, 1948.*

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